CLAIMS

1. Capacitive sensor including at least one measuring capacitor (Cm) having a first plate and a second plate of which at least one plate is a mobile plate capable of moving with respect to a rest position when, in a measuring phase, a measuring voltage is applied between the first and second plates, characterised in that it includes means for applying, simultaneously to the measuring voltage, between the first and second plates, an actuation voltage (Va) capable of bringing the first and second plates to a position substantially equal to the rest position.

2. Capacitive sensor according to claim 1, characterised in that the means (I, I2, I3) for simultaneously applying, in a measuring phase, a measuring voltage and an actuation voltage (Va) include:

- a first switch (I1) having a first terminal connected to the first plate of the measuring capacitor and a second terminal connected to a first voltage Vh, which first switch (I1) is controlled by a first clock signal (H1), and

- a second switch (I2) having a first terminal connected to the second plate of the measuring capacitor (Cm) and a second terminal connected to a first operation voltage Vp1 so that:

$$Vp1 = Vdd + Va$$

where Va is the actuation voltage and Vdd is a second voltage, which second switch (I2) is controlled by a second additional clock signal (H2) that does not overlap with the first clock signal, and

- a third switch (I3) having a first terminal connected to the second plate of the measuring capacitor (Cm) and a second terminal connected to a second operation voltage Vp2 so that the second operation voltage is written:

$$Vp2 = Vref + Va,$$

where Vref is a reference voltage,

which third switch (I3) is controlled by the first clock signal (H1).

3. Capacitive sensor according to claim 2, characterised in that the second plate of the measuring capacitor (Cm) is connected to the first terminal of a fourth switch (I4) of which the second terminal is connected to the inverting input (-) of an operational amplifier (A) of which the supply voltage is the voltage Vdd and of which the non-inverting input (+) is connected to the reference voltage Vref, wherein the fourth switch (I4) is controlled by the second clock signal (H2), a fifth switch (I5) and a negative feedback capacitance (C1) are mounted parallel between the inverting input (-) and the output of the operational amplifier (A), and the fifth switch (I5) is controlled by the first clock signal (H1).

4. Capacitive sensor according to claim 2, characterised in that the second plate of the measuring capacitor is connected to a first plate of an insulation capacitor (C2) of which the second plate is connected to the inverting input (-) of an operational amplifier (A), wherein a fourth switch (Ia) controlled by the second clock signal (H2) has a first terminal connected to the first plate of the insulation capacitor (C2), a fifth switch (Ib) controlled by the first clock signal (H1) has a first terminal connected to the second plate of the insulation capacitor (C2), the fourth (Ia) and fifth (Ib) switches have their second terminals connected to one another and to a first plate of a negative feedback capacitor (C1), of which the second terminal is connected to the output of the operational amplifier (A), wherein a sixth switch (Ic) controlled by the first clock signal (H1) is mounted parallel with respect to the negative feedback capacitor (C1), the operational amplifier (A) has a non-inverting input (+) connected to the reference voltage Vref of lower amplitude than the amplitude of the voltage Vh, and the second voltage Vdd is the supply voltage of the operational amplifier (A).

5. Capacitive sensor according to claim 2, characterised in that the second plate of the measuring capacitor (Cm) is connected to a first plate of an insulation capacitor (C2) of which the second plate is connected to the inverting input (-) of an operational amplifier (A), wherein a fourth switch (Ia) controlled by the second clock signal (H2) has a first terminal

connected to the first plate of the insulation capacitor (C2), a fifth switch (Ib) controlled by the first clock signal (H1) has a first terminal connected to the second plate of the insulation capacitor (C2), the fourth (Ia) and fifth (Ib) switches have their second terminals connected to one another, a negative feedback capacitor (C1) has a first plate connected to the second terminals of the fourth and fifth switches by means of a sixth switch (Id) controlled by the second clock signal (H2), and to the voltage Vh by means of a seventh switch (Ie) controlled by the first clock signal (H1), and a second plate connected to the reference voltage by means of an eighth switch (If) controlled by the first clock signal (H1) and to the output of an operational amplifier (A) by means of a ninth switch (Ig) controlled by the second clock signal (H2), a tenth switch (Ic) controlled by the first clock signal (H1) having a first terminal connected to the second terminals of the fourth and fifth switches and a second terminal connected to the output of the operational amplifier of which the non-inverting input (+) is connected to the reference voltage Vref, and the second voltage Vdd is the supply voltage of the operational amplifier (A).

6. Measuring method with the help of a capacitive sensor including at least one measuring capacitor (Cm) having a first plate and a second plate of which at least one plate is a mobile plate capable of moving, with respect to a rest position, when a measuring voltage is applied between the first and second plates,

characterised in that it includes, simultaneously to the application of a measuring voltage between the first and second plates, the application, between said first and second plates, of an actuation voltage (Va) capable of bringing the first and second plates to a position substantially equal to the rest position.